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Improper Retrograde Urethrogram Technique Leads to Incorrect Diagnosis

A 32-year-old man sustained a straddle injury during a motorcycle accident. Physical examination revealed blood at the urethral meatus and a closed right humerus fracture. Before Foley catheter insertion a retrograde urethrogram was obtained (part *A* of figure). Contrast failed to fill the bladder indicating a possible complete disruption at the penoscrotal junction. However, on closer inspection the study was not technically sound.

The penis was folded over the scrotum, whereas it should be on full stretch and perpendicular to the body to straighten the bend in the urethra at the penoscrotal junction. In addition, there was venous intravasation of contrast material in the corpus spongiosum and surrounding veins, indicating excessive pressure or speed of contrast injection.¹

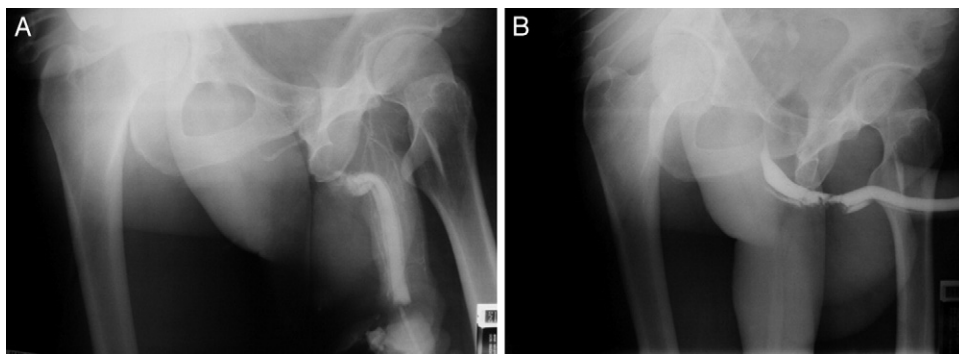
Another retrograde urethrogram using the proper technique showed only partial urethral disruption and contrast flow to the bladder (part *B* of figure). A well lubricated Foley catheter was gently inserted through the urethra into the bladder. A month after the injury repeat retrograde urethrogram showed an area of stricture in the bulbar urethra which was subsequently balloon dilated.

Blunt urethral injuries usually result from straddle type of trauma incurred after forceful contact of the perineum with a blunt object.² Any focused external force as encountered in falls and vehicular

accidents can crush the immobile bulbous urethra against the inferior pubis. Blood at the meatus is seen in at least 75% of patients after external anterior urethral trauma.² No instrumentation should be used until a proper retrograde urethrogram is obtained if meatal blood is present or suspicion of urethral injury exists.

A retrograde urethrogram is taken by positioning the patient obliquely at 45 degrees with the bottom leg flexed 90 degrees at the knee and the top leg kept straight. A 12Fr Foley catheter is introduced into the fossa navicularis, the balloon is inflated with 2 ml saline to prevent dislodgement, the penis is placed on gentle traction and 20 to 30 ml undiluted water soluble contrast material are injected with the film exposed.³

Occasionally a Foley catheter has been successfully placed before evaluating the urethra. In this setting if no meatal blood is present and suspicion of injury is low, further imaging is not needed. If blood is present a pericatheter retrograde urethrogram should be performed. Some advocate the coaxial placement of a 3Fr catheter to the level of the posterior urethra followed by contrast injection.⁴ In our experience this technique does not distend the urethra sufficiently to properly define the injury. Better anatomical detail is provided by injecting contrast material through a 3Fr catheter or angiocatheter



A, on retrograde urethrogram performed using poor technique urethra appears disrupted. *B*, on properly performed retrograde urethrogram urethra is in continuity.

held in the fossa navicularis to prevent contrast leak.

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